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OFFICE OF
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MEMORANDUM

DATE: December 1, 2008

SUBJECT: The Drinking Water Degradates Identification Memorandum for Saflufenacil.

TO: Christine Olinger, Co-chair
Mary Manibusan, Co-chair
Residues of Concern Knowledgebase Subcommittee

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This memorandum identifies the environmental degradates of saflufenacil that may be of exposure concern for drinking water assessment. These data are provided to help inform determinations of which environmental degradates are of risk concern for drinking water assessment in support of human health risk assessment. If you have questions about this memorandum, please contact Greg Orrick at 703-305-6140.

Saflufenacil is a uracil herbicide that is expected to be mobile to highly mobile. Its major routes of degradation are alkaline hydrolysis and biodegradation in aerobic soil. The compound is expected to degrade with a half-life of 1 to 5 weeks in aerobic soil environments and a half-life of 7 to 15 weeks (2 to 4 months) in aerobic aquatic

environments. Its degradation in anaerobic environments is uncertain. Therefore, saflufenacil is not expected to persist in environments other than acidic to neutral water bodies, which is supported by terrestrial field dissipation half-lives of 2 to 22 days in the continental United States.

Table 1 summarizes the submitted environmental fate data for saflufenacil. Because the submitted data are in review during the writing of this memorandum, all information in this memorandum is provisional.

Table 1. Environmental Fate Data Summary for Saflufenacil.

OPPTS Guideline	Data Requirement	Data Summary
835.2120	Hydrolysis $t_{1/2}$ at 25°C	pH 5: Relatively stable pH 7: 248 d pH 9: 4.93 d
835.2240	Aqueous photolysis $t_{1/2}$ at 22°C	57 d (pH5), 22 d (natural)
835.2410	Soil photolysis $t_{1/2}$ at 22°C	83, 87 d
835.4100	Aerobic soil metabolism $t_{1/2}$ at 25°C	30.3, 33.5 d (ID) 24.2, 29.0 d (IL) 8.5, 10.1 d (NJ) 22.8, 24.3 d (WI)
835.4300	Aerobic aquatic metabolism $t_{1/2}$ at 25°C	50.2, 107 d
835.4400	Anaerobic aquatic metabolism $t_{1/2}$ at 25°C	Unacceptable: not anaerobic (27.6, 28.5 d)
835.1230	Batch equilibrium (K_{FOC})	1.5, 19, 21, 22, 25, 54 L/kg$_{OC}$ (saflufenacil)
		3.5-27 L/kg$_{OC}$ (M01); 0-40 L/kg$_{OC}$ (M02); 2.2-111 L/kg$_{OC}$ (M07); 4.3-19 L/kg$_{OC}$ (M08); 8.1-58 L/kg$_{OC}$ (M15); 0-24 L/kg$_{OC}$ (M22)
835.6100	Terrestrial field dissipation $t_{1/2}$ (bare ground sites, runoff not measured)	5.9 d (GA) 17.1, 10.4, 24.6 d (AR, IL, Manitoba) 2.4, Stable, 22.3 d (WA, Ontario, CA)
850.1730	Fish bioconcentration (BCF)	1.57, 0.03, 2.08 and 4.63, 0.33, 5.86 (whole, edible, inedible)

Mobility

Batch equilibrium data on saflufenacil suggest that the compound is mobile to highly mobile in soil (FAO classification; USEPA, 2006), as it does not extensively sorb to soil (Freundlich organic carbon partition coefficients range from 1.5 to 54; MRID 47127829). Major degradates M01, M02, M07, M08, M15, and M22 (chemical names and structures are listed in **Table 2**) display some variability in relative soil mobility, but generally have similar mobility in soil as the parent compound (MRID 47127830). Saflufenacil was detected in submitted terrestrial field dissipation studies at up to the 15-30 cm soil depth (MRID 47128234, 47128235) which is consistent with the low partition coefficients.

Saflufenacil is not volatile, with a partial vapor pressure of $1.5 \cdot 10^{-16}$ torr at 25°C (MRID 47127821). The compound exhibits acid-base behavior (pKa=4.41; MRID 47127817) and is increasingly soluble in water with increasing pH at 20°C (*i.e.*, water solubility is 14 ppm at pH 4 and 2100 ppm at pH 7; MRID 47127819). Consistent with its mobility in

soil and acid-base chemistry, saflufenacil has a low K_{OW} of 368 at pH<pKa and an undetermined K_{OW} at pH>pKa (MRID 47127818), and is not expected to bioaccumulate (Fish BCF of 0-6x; MRID 47127909). Therefore, transport in the environment is expected to occur predominantly via dissolved residues in surface water runoff and in ground water leachate.

Degradation

Saflufenacil is slowly photolyzed in water (half-life of 57 days at pH 5; MRID 47127824) and on soil (half-lives of 83 and 87 days; MRID 47127825) at 22°C. Also, the compound is relatively stable to hydrolysis at pH 5, almost stable at pH 7 (half-life of 248 days), and readily hydrolyzed at pH 9 (half-life of 4.9 days; MRID 47127823). Therefore, alkaline hydrolysis is a major degradation route for saflufenacil in high pH environments.

Saflufenacil biodegrades in 1 to 5 weeks in aerobic soil (half-lives of 8.5-34 days; MRID 47445901) and less quickly in aerobic aquatic environments of pH 5.6 to 6.4 (half-lives of 50 and 107 days). Therefore, aerobic soil metabolism is another major degradation route for saflufenacil that will operate in the environment at any pH value.

Biodegradation in anaerobic aquatic environments is uncertain, as the submitted anaerobic aquatic metabolism study systems were aerobically stratified, with anaerobic sediments and aerobic water columns (MRID 47127828). Half-lives were 28 and 29 days, which is less than those for the submitted aerobic aquatic metabolism study. However, system pH values ranged from 5.5 to 8.5, indicating that alkaline hydrolysis may have appreciably contributed to degradation. An anaerobic soil metabolism study is in development and has not been submitted at the time of writing.

Dissipation occurred with half-lives of 2.4 to 22 days in terrestrial field dissipation studies conducted in the continental United States (MRID 47127834, 47127835, 47127836), which is consistent with the submitted, laboratory-derived data. Dissipation was slower in Canadian field plots (half-lives of 25 days and >>20 days).

Major and minor organic degradates of saflufenacil are listed in **Tables 2 and 3**, respectively. Major degradates that are structurally similar to the parent compound include M01, M02, M04, M07, M08, M15, M22, and the soil photolysis product number 8. Major cleavage products of saflufenacil include M26, M29, M31, M33, and TFP. Another major aqueous photolysis product was isolated as well (unknown 3/4/7/6), but not identified. Major degradates that did not decline in amount in unsterile study conditions include M7, M29, and product 8.

Degradates of Exposure Concern

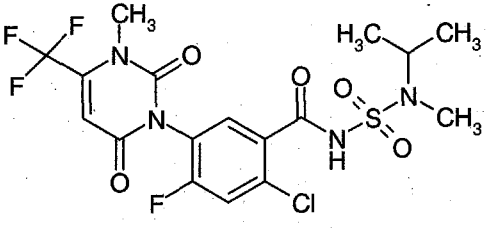
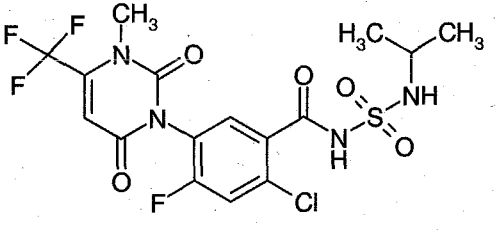
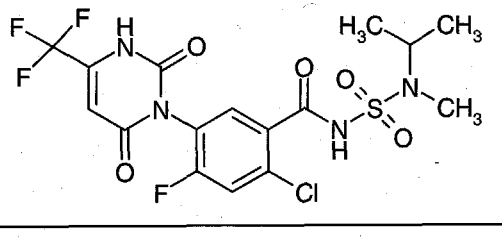
The environmental degradates of saflufenacil that are of exposure concern for drinking water include thirteen of the parent compound's fourteen major organic degradates, M01, M02, M07, M08, M15, M22, M26, M29, M31, M33, TFP, Product 8, and unknown 3/4/7/6. These are major degradates in environmental fate studies that are not transient

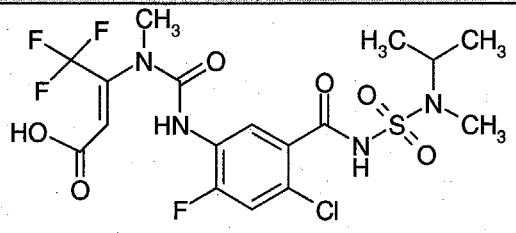
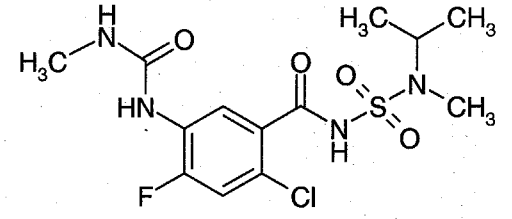
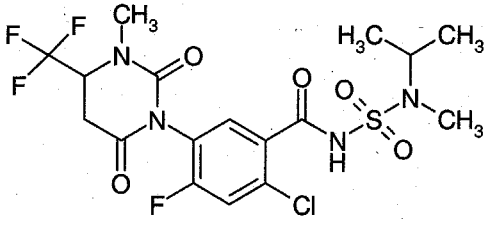
and/or may be used to model exposure estimates for saflufenacil residues of concern. M04 is not of exposure concern because it exceeded 10% of the applied only in the hydrolysis study at pH 9 and was not detected 18 days after its peak concentration.

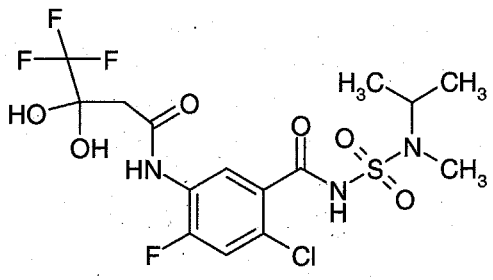
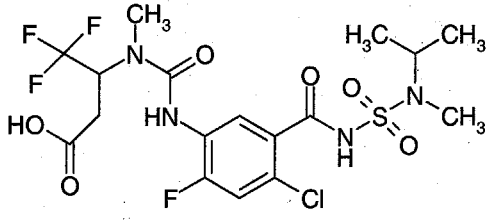
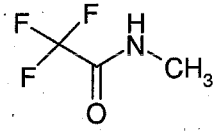
References

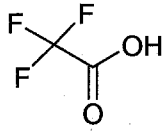
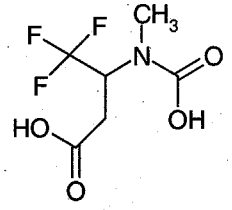
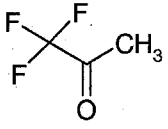
USEPA. 2006. Standardized Soil Mobility Classification Guidance. U.S. Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances, Office of Pesticide Programs, Environmental Fate and Effects Division, Memorandum. April 21, 2006.

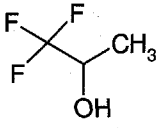
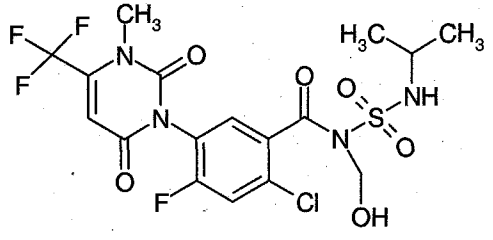
Table 2. Saflufenacil and Its Major Organic Environmental Degradates.

Code Name/ Synonym	Chemical Name	Chemical Structure	Study Type	Maximum %AR (day)	Final %AR (study length)
PARENT					
Saflufenacil **BAS 800H**	**IUPAC:** N'-{2-Chloro-4-fluoro-5-[1,2,3,6-tetrahydro-3-methyl-2,6-dioxo-4-(trifluoromethyl)pyrimidin-1-yl]benzoyl}-N-isopropyl-N-methylsulfamide **CAS:** 2-Chloro-5-[3,6-dihydro-3-methyl-2,6-dioxo-4-(trifluoromethyl)-1(2H)-pyrimidinyl]-4-fluoro-N-[[methyl(1-methylethyl)amino] sulfonyl]benzamide **CAS-no:** 372137-35-4 **Formula:** $C_{17}H_{17}ClF_4N_4O_5S$ **MW:** 500.86 g/mol				
MAJOR (>10%) TRANSFORMATION PRODUCTS					
M01 **M800H01**	N'-[2-Chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydro-1(2H)-pyrimidinyl)benzoyl]-N'-isopropylsulfamide **Formula:** $C_{16}H_{15}ClF_4N_4O_5S$ **MW:** 486.83 g/mol		Aerobic soil	**10** (57)	1.3 (330)
			Anaerobic soil	(data submission pending)	
			Soil photolysis	5.4 (14)	nd[1] (30)
			Aqueous photolysis	not detected	
			Hydrolysis	not identified but not major[2]	
			Aerobic aquatic	not detected	
			Anaerobic aquatic	not identified but not major[2]	
			Field studies	0.02 ppm (0-8, 11, 20)	nd[1] (124, 271, 360)
M02 **M800H02**	N'-[2-Chloro-5-(2,6-dioxo-4-(trifluoromethyl)-3,6-dihydro-1(2H)-pyrimidinyl)-4-fluorobenzoyl]-N-isopropyl-N-methylsulfamide **Formula:** $C_{16}H_{15}ClF_4N_4O_5S$ **MW:** 486.83 g/mol		Aerobic soil	**30** (246)	17 (330)
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not detected	
			Aqueous photolysis	not detected	
			Hydrolysis	not identified but not major[2]	
			Aerobic aquatic	not detected	
			Anaerobic aquatic	not identified but not major[2]	
			Field studies	0.01 ppm (0-2, 6)	nd[1] (360)

Code Name/ Synonym	Chemical Name	Chemical Structure	Study Type	Maximum %AR (day)	Final %AR (study length)
M04 **M800H04**	**Formula:** $C_{17}H_{19}ClF_4N_4O_6S$ **MW:** 518.87 g/mol		Aerobic soil	not identified but not major[2]	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified but not major[2]	
			Aq. photolysis -pH5	5.9 (15)	3.4 (20)
			Aq. photolysis -pH7	not identified	not identified
			Hydrolysis -pH7	0.95 (30)	0.95 (30)
			Hydrolysis -pH9	**13** (3)	nd[1] (30)
			Aerobic aquatic	not identified but not major[2]	
			Anaerobic water	4.4 (62)	nd[1] (364)
			Anaerobic sediment	0.5 (62)	nd[1] (364)
			Anaerobic system	4.4 (62)	nd[1] (364)
			Field studies	not analyzed	
M07 **M800H07**	N-{4-Chloro-2-fluoro-5-[({[isopropyl (methyl) amino] sulfonyl} amino) carbonyl] phenyl}-N'-methylurea **Formula:** $C_{13}H_{18}ClFN_4O_4S$ **MW:** 380.83 g/mol		Aerobic soil	**52** (25)	7.2 (330)
			Anaerobic soil	(data submission pending)	
			Soil photolysis	**19** (14)	2.3 (30)
			Aq. photolysis -pH5	not detected	not detected
			Aq. photolysis -pH7	**13** (21)	13 (21)
			Hydrolysis –pH7	9.2 (30)	9.2 (30)
			Hydrolysis –pH9	**77** (30)	77 (30)
			Aerobic water	**20** (30)	19 (60)
			Aerobic sediment	3.7 (60)	3.7 (60)
			Aerobic system	**23** (60)	23 (60)
			Anaerobic water	**62** (364)	62 (364)
			Anaerobic sediment	**13** (91)	6.7 (364)
			Anaerobic system	**71** (91)	68 (364)
			Field studies	0.02 ppm (11, 20, 44)	nd[1] (124, 271)
M08 **M800H08**	N'-[2-Chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl) tetrahydro-1(2H)-pyrimidinyl) benzoyl]-N-isopropyl-N-methylsulfamide **Formula:** $C_{17}H_{19}ClF_4N_4O_5S$ **MW:** 502.88 g/mol		Aerobic soil	**66** (246)	41 (330)
			Anaerobic soil	(data submission pending)	
			Soil photolysis	**19** (22)	18 (30)
			Aqueous photolysis	not detected	
			Hydrolysis	not identified but not major[2]	
			Aerobic aquatic	not detected	
			Anaerobic aquatic	not identified but not major[2]	
			Field studies	0.05 ppm (1, 6)	nd[1] (124, 360)

Code Name/ Synonym	Chemical Name	Chemical Structure	Study Type	Maximum %AR (day)	Final %AR (study length)
M15 **M800H15**	N-{4-Chloro-2-fluoro-5-[({[isopropyl (methyl) amino] sulfonyl} amino) carbonyl] phenyl}-4-4-4-trifluoro-3,3-dihydroxybutanamide **Formula:** $C_{15}H_{18}ClF_4N_3O_6S$ **MW:** 479.84 g/mol		Aerobic soil	not identified but not major[2]	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	9.6 (30)	9.6 (30)
			Aq. photolysis -pH5	3.0 (20)	3.0 (20)
			Aq. photolysis -pH7	not detected	not detected
			Hydrolysis –pH7	2.3 (30)	2.3 (30)
			Hydrolysis –pH9	**22** (30)	22 (30)
			Aerobic aquatic	not detected	
			Anaerobic water	**17** (62-91)	7.1 (364)
			Anaerobic sediment	0.9 (273)	0.8 (364)
			Anaerobic system	**17** (62-91)	7.6 (364)
			Field studies	not detected	
M22 **M800H22**	3-[({4-Chloro-2-fluoro-5-[({[isopropyl(methyl)amino]sulfonyl}amino)carbonyl]anilino}carbonyl)(methyl)amino]-4,4,4-trifluorobutanoic acid **Formula:** $C_{17}H_{21}ClF_4N_4O_6S$ **MW:** 520.89 g/mol		Aerobic soil	**16** (43)	7.1 (334)
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not detected	
			Aqueous photolysis	not detected	
			Hydrolysis	not identified but not major[2]	
			Aerobic aquatic	not detected	
			Anaerobic aquatic	not identified but not major[2]	
			Field studies	not detected	
M26 **M800H26**	N-Methyl-2,2,2-trifluoroacetamide **Formula:** $C_3H_4F_3NO$ **MW:** 127.07 g/mol		Aerobic soil	**18** (25)	nd[1] (334)
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified but not major[2]	
			Aqueous photolysis	not identified but not major[2]	
			Hydrolysis	not identified but not major[2]	
			Aerobic aquatic	not identified but not major[2]	
			Anaerobic aquatic	not identified but not major[2]	
			Field studies	not analyzed	

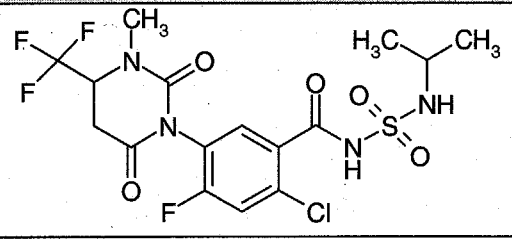
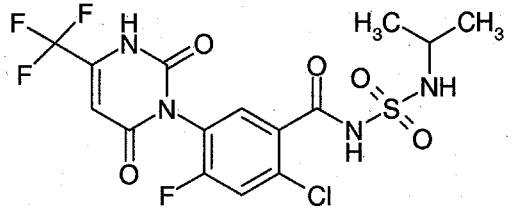
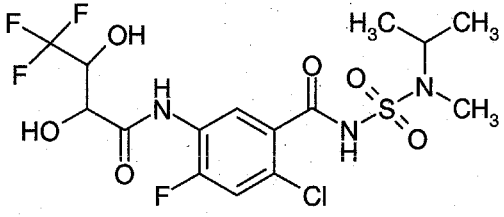
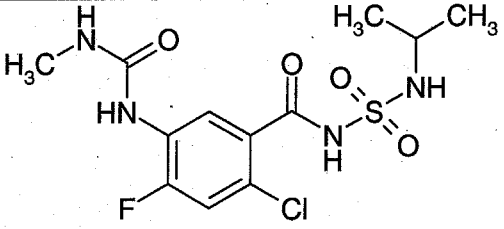
Code Name/ Synonym	Chemical Name	Chemical Structure	Study Type	Maximum %AR (day)	Final %AR (study length)
M29 **M800H29** **TFA** **(also formulated as TFA, sodium salt)**	Trifluoroacetic acid **Formula:** $C_2HF_3O_2$ **MW:** 114.02 g/mol		Aerobic soil	not identified but not quantified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified but not major[2]	
			Aq. photolysis -pH5	4.8 (20)	4.8 (20)
			Aq. photolysis -pH7	**29** (21)	29 (21)
			Hydrolysis	not identified but not major[2]	
			Aerobic water	6.9 (60)	6.9 (60)
			Aerobic sediment	2.0 (51-60)	2.0 (60)
			Aerobic system	8.8 (60)	8.8 (60)
			Anaerobic water	9.2 (364)	9.2 (364)
			Anaerobic sediment	3.6 (91)	1.9 (364)
			Anaerobic system	**11** (364)	11 (364)
			Field studies	not analyzed	
M31 **M800H31**	3-[Carboxy(methyl)amino]-4,4,4-trifluorobutanoic acid **Formula:** $C_6H_8F_3NO_4$ **MW:** 215.13 g/mol		Aerobic soil	**18** (43)	8.7 (334)
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified but not major[2]	
			Aqueous photolysis	not identified but not major[2]	
			Hydrolysis	not identified but not major[2]	
			Aerobic aquatic	not identified but not major[2]	
			Anaerobic aquatic	not identified but not major[2]	
			Field studies	not analyzed	
M33 **M800H33**	1,1,1-Trifluoroacetone **CAS-no:** 421-50-1 **Formula:** $C_3H_3F_3O$ **MW:** 112.05 g/mol		Aerobic soil	not identified but not major[2]	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified but not major[2]	
			Aq. photolysis -pH5	not detected	not detected
			Aq. photolysis -pH7	**30** (21)	30 (21)
			Hydrolysis –pH7	4.7 (30)	4.7 (30)
			Hydrolysis –pH9	**74** (21)	73 (30)
			Aerobic water	**23** (7)	3.2 (60)
			Aerobic sediment	nd[1]	nd[1]
			Aerobic system	**23** (7)	3.2 (60)
			Anaerobic water	**15** (62)	nd[1] (364)
			Anaerobic sediment	0.9 (62)	nd[1] (364)
			Anaerobic volatiles	**13** (160-364)	13 (364)
			Anaerobic system	**25** (62)	13 (364)
			Field studies	not analyzed	

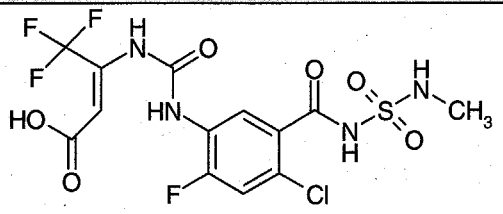
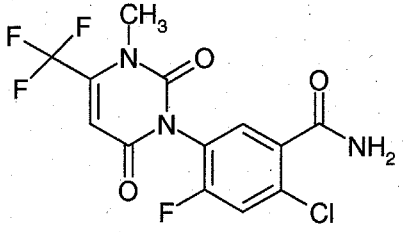
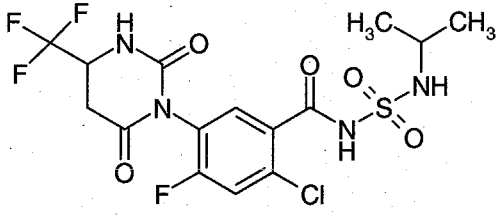
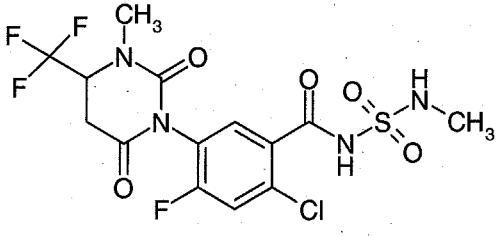
Code Name/ Synonym	Chemical Name	Chemical Structure	Study Type	Maximum %AR (day)	Final %AR (study length)
TFP	1,1,1-Trifluoro-2-propanol **CAS-no:** 374-01-6 **Formula:** $C_3H_5F_3O$ **MW:** 114.07 g/mol		Aerobic soil	not identified but not major[2]	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified but not major[2]	
			Aqueous photolysis	not identified but not major[2]	
			Hydrolysis	not identified but not major[2]	
			Aerobic aquatic	not identified but not major[2]	
			Anaerobic water	**16** (62)	0.4 (364)
			Anaerobic sediment	3.4 (62)	nd[1] (364)
			Anaerobic volatiles	**24** (160-364)	24 (364)
			Anaerobic system	**30** (62)	24 (364)
			Field studies	not analyzed	
Product 8	**Formula:** $C_{17}H_{15}ClF_4N_4O_6S$ **MW:** 516.86 g/mol		Aerobic soil	not identified but not major[2]	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	**17** (15)	17 (15)
			Aqueous photolysis	not identified but not major[2]	
			Hydrolysis	not identified but not major[2]	
			Aerobic aquatic	not identified but not major[2]	
			Anaerobic aquatic	not identified but not major[2]	
			Field studies	not analyzed	
Unknown 3/4/7/6	Unknown compound with t_R 12.5-13.2 min that formed under irradiated conditions in the aqueous photolysis study, including unknowns 3 (phenyl-labeled) and 4 (uracil-labeled) in the pH5 study and unknowns 7 (phenyl-labeled) and 6 (uracil-labeled) in the pH7 study.	Unknown	Aerobic soil	not identified but not major[2]	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified but not major[2]	
			Aq. photolysis -pH5	**15** (20)	15 (20)
			Aq. photolysis -pH7	**10** (21)	10 (21)
			Hydrolysis	not identified but not major[2]	
			Aerobic aquatic	not identified but not major[2]	
			Anaerobic aquatic	not identified but not major[2]	
			Field studies	not analyzed	

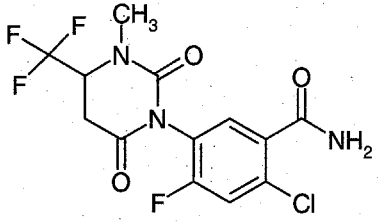
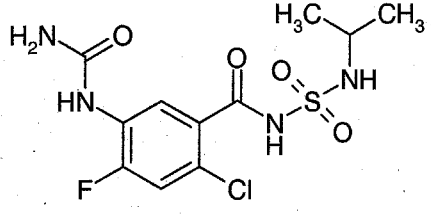
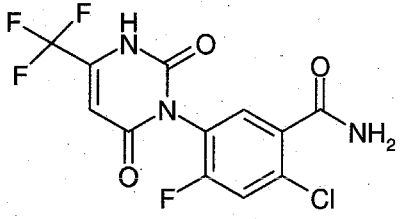
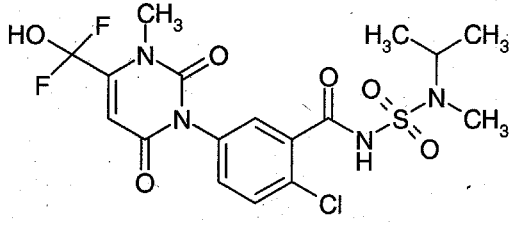
1 "nd" means that the compound was not detected.

2 "not identified but not major" means that the compound was not identified and that any unidentified compounds each accounted for less than 10% of the applied.

Table 3. Minor Organic Environmental Degradates of Saflufenacil.

Code	Chemical name	Chemical structure	Study Type	Maximum %AR (day)	Final %AR (study length)
M06 **M800H06**	N-[2-Chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)tetrahydro-1(2H)-pyrimidinyl)benzoyl]-N'-isopropylsulfamide **Formula:** $C_{16}H_{17}ClF_4N_4O_5S$ **MW:** 488.85 g/mol		Aerobic soil	identified but not quantified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aqueous photolysis	not identified	
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic aquatic	not identified	
			Field studies	not analyzed	
M11 **M800H11**	N'-[2-Chloro-5-(2,6-dioxo-4-(trifluoromethyl)-3,6-dihydro-1(2H)-pyrimidinyl)-4-fluorobenzoyl]-N-isopropylsulfamide **Formula:** $C_{15}H_{13}ClF_4N_4O_5S$ **MW:** 472.81 g/mol		Aerobic soil	not analyzed	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not analyzed	
			Aqueous photolysis	not analyzed	
			Hydrolysis	not analyzed	
			Aerobic aquatic	not detected	
			Anaerobic aquatic	not analyzed	
			Field studies	not analyzed	
M16 **M800H18**	2-Chloro-4-fluoro-N-{isopropyl (methyl)-amino] sulfonyl}-5-[(4,4,4-trifluoro-2,3-dihydroxybutanyl) amino] benzamide **Formula:** $C_{15}H_{18}ClF_4N_3O_6S$ **MW:** 479.84 g/mol		Aerobic soil	not identified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aqueous photolysis	not identified	
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic water	8.4 (364)	8.4 (364)
			Anaerobic sediment	0.9 (273-364)	0.9 (364)
			Anaerobic system	9.3 (364)	9.3 (364)
			Field studies	not analyzed	
M18 **M800H18**	2-Chloro-4-fluoro-N-[(isopropylamino) sulfmony]-5-{[(methylamino) carbonyl] amino} benzamide **Formula:** $C_{12}H_{16}ClFN_4O_4S$ **MW:** 366.80 g/mol		Aerobic soil	not identified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aqueous photolysis	not identified	
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic water	6.2 (273)	6.0 (364)
			Anaerobic sediment	0.9 (364)	0.9 (364)
			Anaerobic system	7.0 (273)	6.7 (364)
			Field studies	not analyzed	

Code	Chemical name	Chemical structure	Study Type	Maximum %AR (day)	Final %AR (study length)
M24 **M800H24**	(2E)-3-({[4-Chloro-2-fluoro-5-({[(methylamino)sulfonyl]amino}carbonyl)aniline]carbonyl}amino)-4,4,4-trifluoro-2-butenoic acid **Formula:** $C_{13}H_{11}ClF_4N_4O_6S$ **MW:** 462.77 g/mol		Aerobic soil	identified but not quantified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aqueous photolysis	not identified	
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic aquatic	not identified	
			Field studies	not analyzed	
M25 **M800H25**	2-Chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydro-1(2H)-pyrimidinyl)benzamide **Formula:** $C_{13}H_8ClF_4N_3O_3$ **MW:** 365.67 g/mol		Aerobic soil	identified but not quantified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aq. photolysis -pH5	2.9 (20)	2.9 (20)
			Aq. photolysis -pH7	1.7 (15)	1.6 (21)
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic aquatic	not identified	
			Field studies	not analyzed	
M27 **M800H27**	N-[2-Chloro-5-(2,6-dioxo-4-(trifluoromethyl)tetrahydro-1(2H)-pyrimidinyl)-4-fluorobenzoyl]-N'-isopropylsulfamide **Formula:** $C_{15}H_{15}ClF_4N_4O_5S$ **MW:** 474.82 g/mol		Aerobic soil	identified but not quantified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aqueous photolysis	not identified	
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic aquatic	not identified	
			Field studies	not analyzed	
M28 **M800H28**	N-[2-Chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)tetrahydro-1(2H)-pyrimidinyl)benzoyl]-N'-methylsulfamide **Formula:** $C_{14}H_{13}ClF_4N_4O_5S$ **MW:** 460.79 g/mol		Aerobic soil	identified but not quantified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aqueous photolysis	not identified	
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic aquatic	not identified	
			Field studies	not analyzed	

Code	Chemical name	Chemical structure	Study Type	Maximum %AR (day)	Final %AR (study length)
M30 **M800H30**	2-Chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)tetrahydro-1(2H)-pyrimidinyl)benzamide **Formula:** $C_{13}H_{10}ClF_4N_3O_3$ **MW:** 367.69 g/mol		Aerobic soil	identified but not quantified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aqueous photolysis	not identified	
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic aquatic	not identified	
			Field studies	not analyzed	
M35 **M800H35**	N-[4-Chloro-2-fluoro-5-({[(isopropylamino) sulfonyl] amino} carbonyl) phenyl] urea **Formula:** $C_{11}H_{14}ClFN_4O_4S$ **MW:** 352.77 g/mol		Aerobic soil	identified but not quantified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aqueous photolysis	not identified	
			Hydrolysis	not identified	
			Aerobic aquatic	not detected	
			Anaerobic aquatic	not identified	
			Field studies	not analyzed	
Product 3	2-Chloro-5-[2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl]-4-fluorobenzamide **Formula:** $C_{12}H_6ClF_4N_3O_3$ **MW:** 351.65		Aerobic soil	not identified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	9.2 (30)	9.2 (30)
			Aqueous photolysis	not identified	
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic aquatic	not identified	
			Field studies	not analyzed	
Hydroxyl methyl degradate	2-Chloro-5[4-difluoro(hydroxyl) methyl]-(3-methyl-2,6-dioxo-3,6-dihydropyrimidin-1(2H)-yl-N-{[isopropyl(methyl)amino]sulfonyl} benzamide **Formula:** $C_{17}H_{19}ClF_2N_4O_6S$ **MW:** 480.88 g/mol		Aerobic soil	not identified	
			Anaerobic soil	(data submission pending)	
			Soil photolysis	not identified	
			Aq. photolysis -pH5	5.7 (7)	3.4 (20)
			Aq. photolysis -pH7	1.3 (21)	1.3 (21)
			Hydrolysis	not identified	
			Aerobic aquatic	not identified	
			Anaerobic aquatic	not identified	
			Field studies	not analyzed	